

Notice of Allowability

Application No.

10/636,174

Examiner

Ling-Siu Choi

Applicant(s)

BARRON ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03/18/2005.
2. ☒ The allowed claim(s) is/are 1-7, 9-13, 15 and 16.
3. ☒ The drawings filed on 07 August 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 11/21/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. The request filed on November 21, 2005 for a Request for Continued Examination (RCE) under 37 CFR 1.17(e) based on parent Application No. 10/636,174 is acceptable and the RCE has been established.
2. This Office action is in response to IDS filed November 21, 2005. Claims 1-7, 9-13, and 15-16 are now pending.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms Marcella D. Watkins on September 9, 2005.

4. The application has been amended as follows:

Cancel Claims 8 and 14 without prejudice;

Claim 16, line 1, change "wherein the wherein" to --wherein--.

Allowable Subject Matter

5. Claims 1-7, 9-13, and 15-16 are allowed.

6. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Callender et al. [Chem. Mater., **9**, 2418-2433(1997)], Barron et al. (US 6,322,890 B1), Landry et al. [J. Mater. Chem., **5**(2), 331-341(1995)], Kareiva et al. [Chem. Mater., **8**, 2331-2340(1996)], Cook et al. (US 6,369,183 B1), and Nass et al. (5,593,781).

A method to prepare carboxylate-alumoxane nanoparticles , comprising	
mechanically shearing a mixture of	boehmite
	carboxylic acid
in the substantial absence of a solvent	

(summary of claim 1)

Callender et al. disclose a carboxylate-alumoxane ($[Al(O)_x(OH)_y(OOCR)_z]_n$) obtained by a reaction of **boehmite** ($[Al(O)(OH)]_n$) with **acetic acid (A)**, **methoxyacetic acid (MA)**, **(methoxyethoxy) acetic acid (MEA)**, or **[(methoxyethoxy)ethoxyl] acetic acid (MEEA)**, wherein the particle size of MEEA-alumoxane, MEA-alumoxane, or A-alumoxane is 67, 50, or 28 nm, respectively (abstract; page 2422-second column). Attention is drawn to a procedure to prepare A-alumoxane on page 2433, wherein pseudoboehmite is slowly added to a vigorously stirring mixture of acetic acid in water to form A-alumoxane. Attention is also drawn to a

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procedure to prepare MEA-alumoxane, wherein pseudoboehmite and (methoxyethoxy)acetic acid are refluxed in water (page 2433). However, Callender et al. do not teach or fairly suggest a method comprising a mechanical shear of boehmite and carboxylic acid in the substantial absence of a solvent.

Barron et al. disclose a carboxylate-alumoxane nanoparticle obtained by refluxing boehmite or pseudoboehmite and a carboxylic acid in a suitable solvent (water) (col. 5, lines 39-41; Example 1). However, Barron et al. do not teach or fairly suggest a method comprising a mechanical shear of boehmite and carboxylic acid in the substantial absence of a solvent.

Landry et al. disclose a method to prepare carboxylatoaluminosiloxane ($[Al(O)_x(OH)_y(OOCR)_z]_n$), comprising **refluxing** pseudo boehmite ($[Al(O)(OH)]_n$) with an excess of carboxylic acid (RCOOH) either neat or as a xylene solution (abstract; second col., page 333). However, Landry et al. do not teach or fairly suggest a method comprising a mechanical shear of boehmite and carboxylic acid.

Kareiva et al. disclose a method to prepare carboxylate-substituted alumoxane by **refluxing** pseudo-boehmite in a **xylene solution** of the appropriate carboxylic acid (RCOOH) (second col., page 2332). However, Kareiva et al. do not teach or fairly suggest a method comprising a mechanical shear of boehmite and carboxylic acid in the substantial absence of a solvent.

Cook et al. disclose a method to prepare carboxylate-alumoxane comprising **refluxing** boehmite and 4-hydroxybenzoic acid in **water** (Examples 2-6). However, Cook et al. do not teach or fairly suggest a method comprising a mechanical shear of boehmite and carboxylic acid in the substantial absence of a solvent.

Nass et al. disclose a method to prepare carboxylate-alumoxane comprising **refluxing** boehmite and propionic acid in the **distilled water** (Examples 1-2). However, Nass et al. do not teach or fairly suggest a method comprising a mechanical shear of boehmite and carboxylic acid in the substantial absence of a solvent.


In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

February 28, 2006